

Practice: 642 - Water Well**Scenario: #1 - Well depths up to 100 feet.****Scenario Description:**

Typical construction of a well in areas where sufficient water is known to occur at depths up to or equal to 100' from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the well is to provide water for livestock. Wells for this scenario are typically based on a 100' minimum depth. Well casings are 6" in diameter, with a bore hole a minimum 3" greater in diameter. Casing is installed to a depth of 75' with 25' of screen on the bottom. A filter is placed the length of the screened interval and a seal the length of the casing.

Before Situation:

Livestock have insufficient water or are fenced from their water source.

After Situation:

Sufficient water is available for livestock. Utilize Well Water Testing (355) as associated practice. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Scenario Feature Measure: Number of Wells**Scenario Unit: Each****Scenario Typical Size: 1****Scenario Cost: \$3,434.31****Scenario Cost/Unit: \$3,434.31****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Rotary Drill Rig with Operator	1595	Rotary drill rig including equipment and power unit costs and labor.	Hour	\$174.36	9	\$1,569.24
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	9	\$162.99
Materials						
Well Casing, Plastic, 6"	1804	PVC or ABS non-threaded well casing, 6". Materials only.	Foot	\$6.46	75	\$484.50
Grout, cement	1333	Cement grout meeting ASTM specifications for well sealing. Includes both neat-cement grout and bentonite grout mixtures. Includes materials, equipment and labor to place.	Cubic Yard	\$591.79	0.5	\$295.90
Well Cap, 6"	1786	Well cap, 6". Materials only.	Each	\$33.29	1	\$33.29
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$23.93	0.5	\$11.97
Well Screen, plastic, 6"	1999	6" PVC well screen. Materials only.	Foot	\$17.54	25	\$438.50
Chlorine	1335	Liquid chlorine bleach. Includes materials only.	Gallon	\$2.79	1	\$2.79
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	2	\$435.14

Practice: 642 - Water Well**Scenario: #2 - Wells greater than 100 feet deep to 600 feet deep.****Scenario Description:**

Typical construction of a well in areas where sufficient water is known to occur at depths greater than 100' and less than or equal to 600' from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the well is to provide water for livestock. An average well depth is 200'. Well casings are 6" in diameter, with a bore hole a minimum 3" greater in diameter. Casing is installed to a depth of 150' with 50' of screen on the bottom. A filter is placed the length of the screened interval and a seal the length of the casing.

Before Situation:

Livestock have insufficient water or are fenced from their water source.

After Situation:

Sufficient water is available for livestock. Utilize Well Water Testing (355) as associated practice. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Scenario Feature Measure: Depth of Well**Scenario Unit: Foot****Scenario Typical Size: 200****Scenario Cost: \$6,625.50****Scenario Cost/Unit: \$33.13****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Rotary Drill Rig with Operator	1595	Rotary drill rig including equipment and power unit costs and labor.	Hour	\$174.36	20	\$3,487.20
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	12	\$217.32
Materials						
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$23.93	0.5	\$11.97
Grout, cement	1333	Cement grout meeting ASTM specifications for well sealing. Includes both neat-cement grout and bentonite grout mixtures. Includes materials, equipment and labor to place.	Cubic Yard	\$591.79	1	\$591.79
Chlorine	1335	Liquid chlorine bleach. Includes materials only.	Gallon	\$2.79	1	\$2.79
Well Cap, 6"	1786	Well cap, 6". Materials only.	Each	\$33.29	1	\$33.29
Well Screen, plastic, 6"	1999	6" PVC well screen. Materials only.	Foot	\$17.54	50	\$877.00
Well Casing, Plastic, 6"	1804	PVC or ABS non-threaded well casing, 6". Materials only.	Foot	\$6.46	150	\$969.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	2	\$435.14

Practice: 642 - Water Well**Scenario: #3 - Wells greater than 600 feet deep.****Scenario Description:**

Typical construction of a well in areas where sufficient water is known to occur at depths greater than 600' from the ground surface. The well shall be drilled, dug, driven, bored, jetted or otherwise constructed to an aquifer for water supply. The purpose of the well is to provide water for livestock. An average well depth is 700'. Well casings are 6" in diameter, with a bore hole a minimum 3" greater in diameter. Casing is installed to a depth of 500' with 200' of screen on the bottom. A filter is placed the length of the screened interval and a seal the length of the casing.

Before Situation:

Livestock have insufficient water or are fenced from their water source.

After Situation:

Sufficient water is available for livestock. Utilize Well Water Testing (355) as associated practice. Use Critical Area Seeding (342) where necessary to prevent erosion following construction activities.

Scenario Feature Measure: Depth of Well**Scenario Unit: Foot****Scenario Typical Size: 700****Scenario Cost: \$13,591.36****Scenario Cost/Unit: \$19.42****Cost Details (by category):**

Component Name	ID	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Equipment/Installation						
Rotary Drill Rig with Operator	1595	Rotary drill rig including equipment and power unit costs and labor.	Hour	\$174.36	28	\$4,882.08
Labor						
General Labor	231	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$18.11	16	\$289.76
Materials						
Chlorine	1335	Liquid chlorine bleach. Includes materials only.	Gallon	\$2.79	2	\$5.58
Grout, cement	1333	Cement grout meeting ASTM specifications for well sealing. Includes both neat-cement grout and bentonite grout mixtures. Includes materials, equipment and labor to place.	Cubic Yard	\$591.79	2	\$1,183.58
Aggregate, Sand, Graded, Washed	45	Sand, typical ASTM C33 gradation, includes materials, equipment and labor to transport and place	Cubic yard	\$23.93	1	\$23.93
Well Cap, 6"	1786	Well cap, 6". Materials only.	Each	\$33.29	1	\$33.29
Well Casing, Plastic, 6"	1804	PVC or ABS non-threaded well casing, 6". Materials only.	Foot	\$6.46	500	\$3,230.00
Well Screen, plastic, 6"	1999	6" PVC well screen. Materials only.	Foot	\$17.54	200	\$3,508.00
Mobilization						
Mobilization, medium equipment	1139	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$217.57	2	\$435.14